DOCUMENT RESUME

ED 059 782 PS 005 446

AUTHOR Butler, Annie L.; And Others
TITLE Literature Search and Development of an Evaluation System in Early Childhood Education. II. Current Research Limitations upon an Empirically Based Taxonomy of Educational Objectives for Three- Through Five-Year-Old Children.
INSTITUTION Indiana Univ., Bloomington.
SPONS AGENCY Office of Education (DHEW), Washington, D.C.
PUB DATE May 71
CONTRACT OEC-0-70-5033-284
NOTE 27p.

EDRS PRICE MF-$0.65 HC-$3.29
DESCRIPTORS Affective Behavior; Anglo Americans; Behavioral Objectives; *Bibliographies; Cognitive Processes; Culturally Advantaged; Culturally Disadvantaged; Data Analysis; *Early Childhood Education; Educational Objectives; *Evaluation Techniques; Feasibility Studies; Negroes; Objectives; *Preschool Children; Psychomotor Skills; Research; Socioeconomic Status; *Taxonomy

ABSTRACT

The construction of a taxonomy of behavioral objectives for the years three, four, and five was the original intent of the project reported. A further intent was that the taxonomy should distinguish what were reasonable objectives for children of differing socioeconomic (SES) levels and ethnic backgrounds, with particular reference to the advantaged (ADV) and disadvantaged (DADV) populations and to white (anglo), Negro, and other groups. To determine the feasibility of constructing such an empirical taxonomy, the studies were submitted to two kinds of analysis, the first at the close of the abstracting phase and the second at the close of the data summary phase. It can be inferred that research and development activities in early childhood have proceeded much too slowly to keep pace with application demands. The real failure is less in the technology or theory of early childhood development than it is in the coordination of investigative efforts. This state of knowledge made impossible the accomplishment of the original highly differentiated empirical taxonomy. It was possible, nevertheless, by combining studies into grosser demographic subgroupings to prepare a substantial set of behavioral objectives in the psychomotor, cognitive, and affective domains for five year olds. (For related documents, see PS 005 444-445 and PS 005 447-448.) (Author/CK)

ED 059782

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
OFFICE OF EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION POSITION OR POLICY.

LITERATURE SEARCH AND DEVELOPMENT OF AN EVALUATION SYSTEM IN EARLY CHILDHOOD EDUCATION

II. CURRENT RESEARCH LIMITATIONS UPON AN EMPIRICALLY BASED TAXONOMY OF EDUCATIONAL OBJECTIVES FOR THREE- THROUGH FIVE-YEAR-OLD CHILDREN

Annie L. Butler
Edward E. Gotts
Nancy L. Quisenberry
Robert P. Thompson

PS 005446

May, 1971

The work herein reported was performed pursuant to contract OEC-0-70-5033-284 with the Office of Education, U.S. Department of Health Education and Welfare through Indiana University.

Contractors undertaking such work under Government sponsorship are encouraged to express freely their professional judgment in the conduct of the work. Points of view or opinions stated do not, therefore, necessarily represent official Office of Education position or policy.

CONTENTS

I. Introduction 1

II. Findings: Toward a Taxonomy of Objectives 4

III. Summary, Conclusions, and Prospectus 17

IV. Appendices 20

A. Demographic Categories for Tables 1-3 21
B. Demographic Categories for Tables 4-6 22
C. Psychomotor Domain Characteristics for Table 4 23
D. Cognitive Domain Characteristics for Table 5 24
E. Affective Domain Characteristics for Table 6 25

INTRODUCTION

In the original conception of this project, it was planned that a taxonomy of behavioral objectives would be constructed for each year level: three, four, and five. A further intent was that the taxonomy should distinguish what were reasonable objectives for children of differing socioeconomic (SES) levels and ethnic backgrounds, with particular reference to the advantaged (ADV) and disadvantaged (DADV) populations and to white (Anglo) Negro, and other (e.g., Spanish surname, Indian, Oriental). See Appendices A and B on these demographic categories. The taxonomy was to be representative of the cognitive, affective, and psychomotor behavioral characteristics of these children, plus of indicators of their general physical status. The present report deals with the sufficiency of recent research literature on three- through five-year-old children to the construction of such a taxonomy. Opinions about how to deal differentially with these different subgroups of children have multiplied rapidly during the past decade. Our purpose, however, was to bypass this sizable opinion market--and hopefully to avoid the pitfalls of the largely untested mythology that has grown up regarding young children of minority groups. This was to be instead an empirically based taxonomy of objectives for preschool education.

Having stated the task in this form, the issue of constructing the taxonomy reverted to a laborious search through the existing literature, fugitive and formal, for relevant empirical findings, as detailed in our first report, "Researched Characteristics of Preschool Children." Each piece of literature was classified by the reviewers both as to the demographic characteristics of the children studied (age, SES, and racial-ethnic membership) and of the behavioral characteristics studied, since both kinds of

information are essential to constructing such a taxonomy.

A preliminary category system of behavioral characteristics was constructed prior to the search to permit reviewers to identify approximately where a set of findings might eventually fit. Subsequently, during the writing process the project staff reworked the category system to reflect more accurately the directions that empirical investigations have taken in recent years. The original category system was retained through the reworking to provide a continuity between the search phase and later phases of the project. This could be accomplished without expense to the flexibility of the taxonomy effort or the behavioral objective effort. The essentials of this classification system appear in Appendices C through E.

Consideration was given in the beginning to the possible heuristic value of using Piaget's, Gesell's, Guilford's or some other classificatory system or systems rather than a locally-devised system. In each case, however, substantial problems existed which challenged such usage. Piaget's theory, for example, has been constructed based largely upon samplings of European children, with little attention to the SES or ethnic groups of concern to us. Gesell's work was carried out before the advent and influence of television and, although based on children more representative of the American population, the Gesell work does not report on differing behaviors of different SES and ethnic subgroups. Guilford's work derives primarily from adolescent and adult populations and only recently has been extended tentatively downward into the elementary and preschool years.

Even more compelling than the foregoing limitations is the very diversity of behavioral and physical status phenomena investigated. They defy attempts to make them fit neatly into one of these existing frameworks. Piaget's system seems to be the least artificial of these for this purpose, yet, nevertheless, could not encompass the range of our data without considerable

reworking; and one is of course reluctant to presume, in the case of a living theorist, how he might deal with particular data that are quite alien to his investigations and focus. For these very reasons, our classification of behavior is necessarily more empirical than theoretical, although not atheoretical, since we draw attention in our reports to parallels between portions of the data and those theoretical approaches which seem to encompass them somewhat adequately.

FINDINGS: TOWARD A TAXONOMY OF OBJECTIVES

Informed by the considerations detailed above and operating under tight budgetary and time requirements, approximately 1400 to 1500 recent empirical investigations were selected, located, abstracted, and identified both as to demographic and behavioral characteristics studied. The research findings assembled are probably representative of the better work conducted with American children over the past decade. Methodologically, they represent advances in many instances over work done earlier.

All psychomotor, cognitive, and affective studies were grouped by domain for the first analysis, which consisted of a frequency count of studies dealing with characteristics of a particular domain subdivided into the demographic groups which had been studied. Since a particular study can have included more than a single variable, the frequency data of Tables 1 through 3, which appear on the following three pages, are not totally independent. This will be evident from the fact that the totals for the three tables equal together about two times the number of independent studies abstracted, or a rate of two different variables per study. If, however, a study included two different measures of the same construct, this is deliberately deleted from the tabulations. These frequencies thus represent crudely how much is known for each domain by each demographic grouping. See Appendix A for the key to these tables.

Limitations upon the interpretation of age differences are that, while a probability statement can be made that many nursery school children are under five years old and most Head Start and kindergarten children are five, yet these program groupings do not constitute precise age groups. They might more reasonably be used to define what is different between under

PS 005446

TABLE 1

Frequencies of Studies
Dealing with Psychomotor Characteristics
by Demographic Categories

	NEGRO					ANGLO					OTHER					
Age Groups	DADV	ADV	BOTH	UNDS	Total	DADV	ADV	BOTH	UNDS	Total	DADV	ADV	BOTH	UNDS	Total	Grand Total
N.S.	1	0	0	0	1	0	3	0	1	4	0	1	0	5	6	11
3	1	1	1	2	5	4	7	2	24	37	11	8	8	50	77	119
4	7	1	1	2	11	8	13	2	36	59	17	12	9	60	98	168
5	7	0	1	1	9	9	13	1	41	64	13	13	7	56	89	162
Mixed	1	0	1	0	2	1	4	1	4	10	5	3	0	10	18	30
HS & K	16	4	0	9	29	13	0	0	8	21	19	5	3	17	44	94
Totals	33	6	4	14	57	35	40	6	114	195	65	42	27	198	332	584

TABLE 2

Frequencies of Studies
Dealing with Cognitive Characteristics
by Demographic Categories

	NEGRO					ANGLO					OTHER					
Age Groups	DADV	ADV	BOTH	UNDS	Total	DADV	ADV	BOTH	UNDS	Total	DADV	ADV	BOTH	UNDS	Total	Grand Total
N.S.	2	0	0	0	2	0	1	1	0	2	5	5	2	8	20	24
3	4	4	1	2	11	6	11	0	18	35	19	33	16	71	139	185
4	24	8	1	6	39	15	16	3	30	64	43	61	23	108	235	338
5	21	3	0	5	29	11	14	4	32	61	40	65	25	129	259	349
Mixed	54	1	2	7	64	16	8	1	10	35	136	20	8	69	233	332
HS & K	10	2	0	13	25	0	11	1	14	26	18	34	12	89	153	204
Totals	115	18	4	33	170	48	61	10	104	223	261	218	86	474	1039	1432

TABLE 3

Frequencies of Studies
Dealing with Affective Characteristics
by Demographic Categories

	NEGRO					ANGLO					OTHER					
Age Groups	DADV	ADV	BOTH	UNDS	Total	DADV	ADV	BOTH	UNDS	Total	DADV	ADV	BOTH	UNDS	Total	Grand Total
N.S.	1	1	0	0	2	2	0	0	0	2	1	5	0	1	7	11
3	1	0	0	2	3	2	12	1	8	23	6	43	2	51	102	128
4	8	2	1	3	14	5	23	1	10	39	17	60	8	70	155	208
5	11	1	0	4	16	9	27	2	8	46	13	58	3	61	135	197
Mixed	7	0	0	1	8	3	0	0	4	7	13	1	6	22	42	57
HS & K	20	2	0	8	30	8	5	1	6	20	35	18	1	31	85	135
Totals	48	6	1	18	73	29	67	5	36	137	85	185	20	236	526	736

fives and children five and over. Even then one would know that considerable imprecision of age designation remained. It is surprising to note how frequently investigators have used these general terms as their only age specifications--and not in poorly conducted research but in apparently well-executed research. Mixed ages, which means a wide range spanning under fives and fives without separate age breakdown, are reported alarmingly often in the cognitive domain especially, as if it did not matter that a wide range of developmental age and therefore of ability level were present. To complicate matters further, the year specifications three, four, and five turn out in reality to be approximate, with mean age varying considerably across studies that presumably deal with the same age population. Despite these inferential limitations, some developmental experts speak as if these data constitute a clear bedrock on which to erect expectations for children's performance and even for performance contracting. It is difficult to conceive of the source of their special knowledge; it clearly is not public in the usual scientific sense.

Turning next to ethnicity, this aspect is undesignated (other) more often than designated for all three domains. The ratios of undesignated/designated ethnicity for the domains are psychomotor (332/252), cognitive (1039/393), and affective (526/210). The overall ratio is 1897/855. In terms of the intention to make expectations realistic with reference to ethnic subgroupings, over two-thirds of the studies are lost.

Designation of SES (ADV/DADV) is relatively common in studies of Negro children across all three domains but occurs for less than one-half of the studies of Anglos in both psychomotor and cognitive domains. Only in the affective domain do investigators mention SES for Anglos at a rate approaching that for Negroes. What is also evident from totals for ADV Negroes, DADV Negroes, ADV Anglos and DADV Anglos is that most of what is known deals

with the middle two of these groups. This is true also in intentionally comparative studies, in which too often DADV Negroes and ADV Anglos are compared, with complete confounding of SES and ethnicity.

By the present definition of ADV as all children of working class background or higher, perhaps 50 percent of Negro children are ADV. They comprise about 5 percent of this entire age group, but little is known about them. Perhaps as many as 30 percent of Anglo children are DADV by this cut-off, yet little is know of them. Taken together, these facts point to massive lacunae in research sampling from the preschool child population and, hence, a serious barrier to the construction of an empirically based taxonomy of reasonable expectations for children.

A way of highlighting the problem even more dramatically is to examine the frequencies of studies in which the following restrictions are all met: SES is designated, ethnicity is designated, and age level is designated. The number of studies meeting these requirements of the original taxonomy intent by domains are for Negroes--psychomotor (17), cognitive (64), affective (23); for Anglos--psychomotor (54), cognitive (111), affective (78). These stand in contrast to totals of 584, 1432, and 736 for these respective domains. Thus, only 347 out of 2752 studied variables are informative with respect to the demographic information required. It should also be recognized that these totals are weakened by the inequalities, across separately conducted studies, of the mean ages that are designated here as three, four, and five years.

Finally, this diminishing number of studies for each domain must be further subdivided into a variety of behavioral characteristics studied. When this is accomplished, complete gaps with no studies become evident. This analysis made amply clear to us and our consultants that the original empirical taxonomy design was ambitious beyond bounds. This led to a

modification (Appendix B) of the demographic category system that allowed a more approximate kind of conclusion to be reached, but a conclusion based in almost all cases on a broader data base of behavioral characteristics studied. By collapsing threes and fours into under-fives, nursery school could also be included with a reasonable expectation of accuracy. Head Start and kindergarten were merged with fives.

A second type of analysis was conducted to provide a more detailed picture of the amount of information yield for the revised demographic by behavioral characteristics categories (Tables 4 through 6 below). Information yield is defined here as the number of pages, expressed to the nearest one-tenth of a page, which appear in report one of this project. This approach allows recognition of what cannot be disentangled in the first method of analysis (Tables 1 through 3): all studies are not equally informative about what the child is like and can do, even though the research may be equally satisfactory. Of necessity, the amount written into the report represents many subjective decisions about what to say and what to leave unsaid in the face of serious space limitations. These professional judgments can have influenced the overall distribution of page space in undefined ways. This analysis does, despite these limitations, offer a graphic representation of areas of knowledge and ignorance. In this sense, it should serve as a valuable adjunct to report one for the research community by pointing out in some crude quantitative form the limitations of knowledge and, therefore, the areas in which research should be considered. The revised demographic system and behavioral categories necessary to comprehension of Tables 4 through 6 appear in Appendices B through E. Following the 27 demographic subdivisions, each table reports subtotals, in order, for advantaged (I-IX), disadvantaged (X-XVIII), undesignated SES (XIX-XXVII);

under fives (I-III, X-XII, XIX-XXI), fives (IV-VI, XIII-XV, XIX-XXI), mixed and undesignated age (VII-IX, XVI-XVIII, XXV-XXVII); grand total (I-XXVII). Other combinations can, of course, be constituted as required.

This second analysis illustrates the basis on which it was possible to proceed with a modified conception of the taxonomy. By recombining the demographic categories as indicated above plus by some reordering of behavioral categories, as detailed in report three, it was possible to derive an empirically based set of behavioral objectives for five year olds in the psychomotor, cognitive, and affective domains. Further, it was often possible to indicate with reference to under fives what one might find to be the entry characteristics of some children in governmentally supported programs. These statements are worked into expected behavior series or sequences wherever the data permit.

TABLE 4

Psychomotor Domain
Pages of Information Yield

Demographic Groups	Psychomotor Characteristics 0	1	2	3	4	5	6	7	8	9
I	0.25	---	---	---	0.85	---	---	0.15	---	---
II	0.25	---	---	---	0.15	---	---	---	---	---
III	---	---	---	0.45	---	---	---	---	---	---
IV	0.20	---	0.20	---	0.75	---	---	0.20	0.15	---
V	---	---	---	---	---	---	---	---	---	---
VI	---	---	---	---	0.15	---	---	0.15	---	---
VII	---	---	---	---	1.30	---	---	---	---	---
VIII	---	---	---	---	---	---	---	---	---	---
IX	---	---	---	0.90	0.65	0.15	---	---	0.15	---
X	---	---	---	0.35	0.20	---	---	---	---	---
XI	0.35	---	0.25	0.25	0.25	0.15	---	---	---	---
XII	---	0.35	0.15	0.95	0.60	---	---	0.30	---	---
XIII	0.30	---	---	---	0.60	---	---	---	---	---
XIV	0.05	---	---	---	0.45	---	---	0.15	---	---
XV	0.10	---	0.15	0.30	0.65	---	0.10	---	---	---
XVI	---	---	---	0.15	0.45	---	---	---	---	---
XVII	---	---	---	0.25	0.30	---	---	---	---	---
XVIII	---	---	---	0.90	0.50	---	---	0.15	---	---
XIX	0.50	---	0.10	0.30	0.95	0.15	---	0.25	---	---
XX	---	---	---	0.50	0.15	---	---	---	---	---
XXI	1.30	---	---	1.50	2.65	0.50	0.30	0.90	---	---
XXII	---	---	0.25	---	1.90	---	---	---	---	---
XXIII	---	---	---	---	0.20	---	---	---	---	---
XXIV	0.75	---	---	0.35	0.80	---	---	0.40	---	---
XXV	---	---	0.70	0.60	2.90	---	---	0.70	0.20	---
XXVI	---	---	---	0.35	---	---	---	---	---	---
XXVII	1.05	0.25	---	1.75	3.40	---	0.35	1.80	---	---

TABLE 4 (Continued)

Demographic Groups	Psychomotor Characteristics 0	1	2	3	4	5	6	7	8	9
I-IX	0.70	---	0.20	1.35	3.85	0.15	---	0.50	0.30	---
X-XVIII	0.80	0.35	0.55	3.15	4.00	0.15	0.10	0.60	---	---
XIX-XVII	3.60	0.25	1.05	5.35	12.95	0.65	0.65	4.05	0.20	---
I-III, X-XII, X IX-XXI	2.65	0.35	0.50	4.30	5.80	0.80	0.30	1.60	---	---
IV-VI, XIII-XV, XXII-XXIV	1.40	---	0.60	0.65	5.50	---	0.10	0.90	0.15	---
VII-IX, XVI-XVIII XXV-XXVII	1.05	0.25	0.70	4.90	9.50	0.15	0.35	2.65	0.35	---
I-XXVII	5.10	0.60	1.80	9.85	20.80	0.95	0.75	5.15	0.50	---

TABLE 5

Cognitive Domain
Pages of Information Yield

Demographic Groups	Cognitive Characteristics 0	1	2	3	4	5	6	7	8	9
I	---	---	1.05	---	0.05	2.70	---	---	---	0.40
II	---	0.50	0.30	---	0.15	0.20	---	0.40	---	0.30
III	0.45	1.30	3.30	0.40	1.15	3.25	0.10	0.60	0.80	0.70
IV	---	1.10	0.20	---	0.60	0.75	---	---	---	0.40
V	---	0.20	0.10	0.10	---	0.50	---	---	---	---
VI	---	3.15	3.75	0.10	2.35	1.40	0.70	0.80	1.20	2.15
VII	---	---	0.20	0.05	---	---	---	---	---	---
VIII	---	---	---	---	---	---	---	---	---	---
IX	0.20	0.25	1.70	0.65	---	1.70	0.60	0.20	0.20	0.95
X	---	---	---	0.05	0.45	0.05	---	---	0.10	---
XI	---	1.25	0.65	0.05	1.80	1.50	---	---	---	0.30
XII	0.10	1.50	1.10	0.30	2.60	3.05	---	---	0.30	0.50
XIII	---	0.10	0.10	---	0.50	0.75	0.25	---	0.10	---
XIV	---	1.60	0.70	0.05	0.35	2.10	---	0.10	0.30	0.50
XV	0.30	5.20	2.60	0.30	3.50	4.25	0.15	0.15	1.00	1.70
XVI	---	---	0.10	---	---	---	---	---	---	---
XVII	---	2.50	0.80	---	0.10	0.60	---	---	---	---
XVIII	---	0.20	0.40	0.80	0.90	1.55	---	---	0.10	0.05
XIX	0.20	---	0.90	0.20	1.50	0.75	0.10	0.80	1.30	1.50
XX	---	---	---	---	0.70	0.10	---	---	---	---
XXI	---	---	4.50	0.70	1.90	3.50	---	1.40	1.70	1.35
XXII	0.35	0.40	1.10	0.20	0.20	0.20	0.60	0.20	1.40	0.20
XXIII	---	---	0.15	0.10	0.35	0.15	0.10	---	---	---
XXIV	0.15	5.45	6.10	0.70	2.00	4.55	0.95	2.20	4.50	1.30
XXV	0.50	0.65	0.20	0.15	1.00	0.40	---	0.50	0.60	1.25
XXVI	---	0.30	---	---	0.15	0.25	---	---	---	---
XXVII	0.20	3.10	4.80	0.50	1.10	1.55	0.45	0.85	2.35	2.00

TABLE 5 (Continued)

Demographic Groups	Cognitive Characteristics 0	1	2	3	4	5	6	7	8	9
I-IX	0.65	6.50	10.60	1.30	4.30	10.50	1.40	2.00	2.20	4.90
X-XVIII	0.40	12.35	6.45	1.55	10.20	13.85	0.40	0.25	1.90	3.05
XIX-XXVII	1.40	9.90	17.75	2.55	8.90	11.45	2.20	5.95	11.85	7.60
I-III, X-XII, XIX-XXI	0.75	4.55	11.80	1.70	10.30	15.10	0.20	3.20	4.20	5.05
IV-VI, XIII-XV, XXII-XXIV	0.80	17.20	14.80	1.55	9.85	14.65	2.75	3.45	8.50	6.25
VII-IX, XVI-XVIII, XXV-XXVII	0.90	7.00	8.20	2.15	3.25	6.05	1.05	1.55	3.25	4.25
I-XXVII	2.45	28.75	34.80	5.40	23.40	35.80	4.00	8.20	15.95	15.55

TABLE 6

Affective Domain
Pages of Information Yield

Demographic Groups	Affective Characteristics 1	2	3	4	5
I	2.80	1.95	1.05	0.55	---
II	---	0.40	0.50	---	---
III	7.35	3.40	4.40	8.10	0.30
IV	1.25	0.90	0.60	0.35	---
V	---	---	0.10	0.20	0.30
VI	2.00	1.60	---	1.45	0.15
VII	1.65	0.20	0.50	0.80	0.20
VIII	0.20	---	---	0.05	---
IX	3.00	---	1.05	1.20	---
X	0.15	---	0.05	0.30	---
XI	0.45	0.45	0.80	0.60	0.50
XII	0.40	0.05	0.30	1.10	0.10
XIII	0.65	0.55	0.50	0.40	---
XIV	0.80	0.30	0.45	0.55	0.05
XV	0.60	---	1.05	0.95	0.20
XVI	0.35	---	---	0.10	---
XVII	0.30	---	0.20	0.15	---
XVIII	0.70	0.15	0.40	0.75	0.50
XIX	0.05	0.20	---	1.20	0.25
XX	---	---	---	---	---
XXI	3.55	0.60	1.05	3.05	0.20
XXII	0.15	0.25	0.15	0.60	---
XXIII	0.30	---	---	---	0.15
XXIV	1.45	1.30	3.50	---	---
XXV	0.40	0.20	---	0.65	---
XXVI	---	---	0.20	0.05	---
XXVII	1.85	1.30	1.55	2.20	0.10
I-IX	18.25	8.45	8.20	12.70	0.95
X-XVIII	4.40	1.50	3.75	4.90	1.35
XIX-XXVII	7.75	3.85	6.45	7.75	0.70
I-III, X-XII, XIX-XXI	14.75	7.05	8.15	14.90	1.35
IV-VI, XIII-XV, XXII-XXIV	7.20	4.90	6.35	4.50	0.85
VII-IX, XVI-XVIII, XXV-XXVII	8.45	1.85	3.90	5.95	0.80
I-XXVII	30.40	13.80	18.40	25.35	3.00

SUMMARY, CONCLUSIONS, AND PROSPECTUS

This project originally aimed to construct an empirically based taxonomy of behavioral objectives in the cognitive, affective, and psychomotor domains for three-, four-, and five-year-old children of differing ethnic and SES background. Some 1400 to 1500 research and/or evaluation studies were selected from the decade 1960-1970, located, abstracted, and identified for both the behavioral characteristics and demographic subgroups of children studied. Studies were representative of more methodologically advanced approaches because of their recency. They also focused more upon the DADV child than was the case prior to the 1960's.

To determine the feasibility of constructing such an empirical taxonomy, the studies were submitted to two kinds of analysis, the first at the close of the abstracting phase and the second at the close of the data summary phase (For these phases, see report one, "Researched Characteristics of Preschool Children."). The second analysis provides a rough quantified description of the state of knowledge about the behavioral characteristics of children demographically grouped as indicated below in the modified designations.

In the first analysis massive deficiencies were evident in investigator reporting of the sample demographic characteristics of concern to this project. In only about one out of eight studies were sample demographic features reported in sufficient detail to contribute to the original taxonomy planned. The further subdivision of these into the particular behavioral characteristics studied left irremediable knowledge gaps about designated demographic or even whole behavioral characteristics categories. These analyses should prove useful to the research community in pointing out the

present state of knowledge in quantified form.

The state of knowledge thus made impossible the accomplishment of the original highly differentiated empirical taxonomy. It was possible, nevertheless, by combining studies into grosser demographic subgroupings to prepare a substantial set of behavioral objectives in the psychomotor, cognitive, and affective domains for five year olds (See report three, "Part A--Behavioral Objectives, Part B--Evaluation Instruments."). This was less satisfactory than the original intention but provided a more research based set of guidelines than was previously available for what to expect of American five year olds. In this way, it is anticipated that the product of the project will prove helpful to persons responsible for directing preschool programs and to those agencies which are responsible for planning, evaluation, cost accountability analysis, and legislative enablement.

It can be inferred that research and development activities in early childhood have proceeded much too slowly to keep pace with application demands. The quality of the individual research effort is generally heartening. The real failure is less in the technology or theory of early childhood development than it is in the coordination of investigative efforts. Asking that a grand mosaic emerge from the highly individualistic research pursuits than have characterized the past decade is clearly to ask what cannot be.

But we have found that if we make less stringent demands upon this body of knowledge, it can serve some of the practical ends to which national priorities now direct that it be used. That this is possible at all will no doubt prove surprising to some. It suggests that if we can so turn and weave the strands produced by an almost randomized set of past research priorities, with intelligent, systematic planning the whole process

might virtually surge forward.

Our opinion is that much of this might best be accomplished in conjunction with ongoing programmatic efforts in early childhood education. What is clear is that this is not now coming about--that researchers and program personnel still live and move in different worlds. But that their vital interests in children can also coalesce and in fact must do so seems evident to us.

At a minimum, one could hope that investigators would be more precise in describing their subject samples as to age, ethnicity, and SES. Governmental agencies supporting research and evaluation activities may wish to take necessary steps to insure that such information is not lost by failure to describe. Although many investigators are not concerned with differential psychology, they could be encouraged as a matter of policy by professional journals to publish at least footnotes providing some minimum set of breakdowns of outcomes for sex, SES, ethnicity, and age.

Much of this problem, we suspect, is not a matter of ignorance so much as it is of poor sampling procedures. For example, nursery school, kindergarten, and Head Start become loose age designations of convenience because investigators must sample from whatever subject populations are conveniently available. This is so incongruent with the general level of research sophistication as to suggest that there is a serious breakdown in research training programs in the transmission of sampling concepts and skills.

APPENDICES

APPENDIX A

Demographic Categories for Tables 1-3

Age Groups:

N.S.--Nursery School (probably under fives).

3, 4, or 5--Three, four, or five years old; but often precise age data not reported by year labels.

Mixed--Preschool children with age not further specified.

HS & K--Head Start and kindergarten (probably five).

Socioeconomic Groups:

DADV--Disadvantaged; fits governmental definitions; generally lower lower class.

ADV--Advantaged; not disadvantaged; working class plus middle class plus upper class.

BOTH--Study involves both DADV and ADV children and probably no breakdown of groups is given with separate results.

UNDS--Undesignated; no reference made to socioeconomic composition of sample.

Ethnic Groups:

NEGRO--Negro.

ANGLO--White; used to distinguish between Spanish surname and other white children.

OTHER--Undesignated ethnicity; mixed ethnicity without separate results given; Spanish surname, Indian or other groups than Anglo or Negro.

APPENDIX B

Demographic Categories for Tables 4-6

I.	Advantaged	Under 5	Anglo
II.			Negro
III.			Unidentified or Mixed
IV.		5	Anglo
V.			Negro
VI.			Unidentified or Mixed
VII.		Mixed	Anglo
VIII.			Negro
IX.			Unidentified or Mixed
X.	Disadvantaged	Under 5	Anglo
XI.			Negro
XII.			Unidentified or Mixed
XIII.		5	Anglo
XIV.			Negro
XV.			Unidentified or Mixed
XVI.		Mixed	Anglo
XVII.			Negro
XVIII.			Unidentified or Mixed
XIX.	Undesignated or Mixed	Under 5	Anglo
XX.			Negro
XXI.			Unidentified or Mixed
XXII.		5	Anglo
XXIII.			Negro
XXIV.			Unidentified or Mixed
XXV.		Mixed	Anglo
XXVI.			Negro
XXVII.			Unidentified or Mixed

APPENDIX C

Psychomotor Domain Characteristics for Table 4

Category	Characteristic
0	Balance, movement, and coordination
1	Construction with manipulables
2	Dominance, handedness, laterality
3	Growth and maturation
4	Perceptual-motor abilities
5	Play
6	Self-care activities
7	Speech: motor aspects
8	Vitality
9	(Open category)

APPENDIX D

Cognitive Domain Characteristics for Table 5

Category	Characteristic
0	Attentional processes
1	Ability, specific
2	Concepts
3	Creative processes
4	Intelligence, general
5	Language
6	Memory
7	Mediational processes
8	Perceptual processes
9	General cognitive

APPENDIX E

Affective Domain Characteristics for Table 6

Category	Characteristic
1	Social behaviors
2	Social perceptions and communications
3	Motivation
4	Intra-psychic factors
5	Social-cultural-familial influences on program gains and on general development